

IN THE CLAIMS

Please replace pending claims 1, 2 and 12 with amended claims 1, 2 and 12 as follows:

- Sub C1
1. (Twice Amended) A temperature control system for an inkjet printhead assembly, comprising:
- a printhead assembly having ink ejection elements energizable by an electrical pulse having an amplitude and pulse width;
 - a sensor coupled to the printhead assembly for generating a signal representative of the printhead temperature;
 - a memory device for storing current printhead operating parameters, a thermal response model of the printhead assembly and an ejection history of the ejection elements that collectively define a dynamic estimate of the temperature distribution across a predefined portion of the printhead assembly; and
 - a controller for reading a nominal operating pulse width, the signal from the sensor, the dynamic estimate and the printhead operating parameters, the controller calculates an adjusted pulse width using the nominal operating pulse width, the signal from the sensor and the current printhead operating parameters;
- wherein the controller uses the adjusted pulse width to control printhead temperature.
2. (Twice Amended) A method of controlling the temperature of an inkjet printhead having ink ejection elements, the method comprising:
- reading a nominal printhead operating temperature;
 - obtaining a thermal response model of the printhead and an ejection history of the ink ejection elements that collectively define a dynamic estimate of the temperature distribution across a predefined portion of the printhead and a current printhead operating temperature using a sensor on the printhead; and
 - controlling the temperature of the printhead using the dynamic estimate and the measured temperature of the printhead.

12. (Once Amended) A method of controlling the temperature of an inkjet printhead having ink ejection elements energizable by an electrical pulse having an amplitude and pulse width, comprising:

- See ch 12*
- reading a nominal printhead operating temperature, a nominal operating pulse width and pulse width calibration data;
 - PO* obtaining a thermal response model of the printhead and an ejection history of the ink ejection elements that collectively define a dynamic estimate of the temperature distribution across a predefined portion of the printhead and a current printhead operating temperature using a sensor on the printhead;
 - determining a pulse width adjustment factor based on the pulse width calibration data, the dynamic estimate and the measured temperature of the printhead;
 - calculating an adjusted operating pulse width based on the pulse width adjustment factor and the nominal operating pulse width; and
 - applying the adjusted operating pulse width to the printhead to control printhead temperature.